Biodiversity and Representativeness of Research Natural Areas on National Wildlife Refuges in Montana

Designated Areas Within Benton Lake, Charles M. Russell, Lake Mason, Medicine Lake, and Red Rock Lakes National Wildlife Refuges

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MONTANA
Natural Heritage
Program

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Abstract

There are fifteen Research Natural Areas (RNAs) on National Wildlife Refuges administered by the U.S. Fish and Wildlife Service in Montana. Each was inventoried for significant ecological and botanical attributes: outstanding plant association examples, rare plant associations, and Montana plant species of special concern. Two more study sites with existing or prospective special management designation were also considered in the inventory work. Biodiversity and representativeness information was prepared for each study site, including a profile of all well-developed and uncommon native plant associations, description of any rare plant species populations, and a summary of biodiversity significance that incorporates this new data with original RNA designation records. Related information was compiled to help put results in context for each site, including description of environment, land use, management notes, and recognized non-biological values.

As a result, ten outstanding plant association examples, four rare plant associations, and four Montana plant species of special concern were documented within twelve of the study sites. Most of the study sites are located in the Great Plains, complementing one another and generally representing biodiversity features not otherwise under special management designation in Montana. These include riparian and dune systems, once-widespread grassland plant associations that have been drastically reduced elsewhere and rare grassland plant associations that have not been reported in Montana before, uncommon forest and woodland plant associations, and suites of successional habitats associated with black-tailed prairie dog colonies. Individually and collectively, these RNAs help anchor the conservation of Great Plains natural environments and their component plant associations and species.

We recommend additional surveys that extend beyond current RNA boundaries to identify areas that would fill gaps and achieve representation at scales more consistent with ecological processes and the historic nature of once-widespread vegetation types. The greatest potential for such areas is in the Charles M. Russell NWR and on surrounding public lands, which offer unique opportunities for identification and conservation of representative large-scale landscape systems.

Acknowledgements

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This work also benefited from the time and skills of Montana Natural Heritage (MTNHP) staff. Jim Vanderhorst provided botanical expertise in field inventory at one site. Scott Lee-Chadde digitized sampling locations and contributed GIS map products. Steve Chadde and Cedron Jones conducted the original work in years prior to this project that set up the databases with RNA information, subsequently used to plan this inventory and provide a framework for compiling new information. The Biological Conservation Database and its linked series of datasets represent the contributions of many MTNHP staff, as well as the work of biologists statewide.

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